Project Introduction

The National Airspace System (NAS) in the United States will become a complex array of commercial and general aviation aircraft, unmanned aircraft systems, reusable launch vehicles, rotorcraft, airports, air traffic control, weather services, and maintenance operations, among others. The Federal Aviation Administration (FAA) projects that by 2025 air traffic will increase by more than 50 percent with 1.1 billion passengers a year and more than 85,000 flights every 24 hours contributing to further delays and congestion in the sky. This increased system complexity necessitates the application of systematic safety risk analysis methods to understand and eliminate where possible, reduce, and/or mitigate risk factors. The product of this effort is the development of an Uninhabited Aerial System (UAS) safety analysis model (USAM). USAM is ground-breaking technology that combines research NASA has already conducted on future UAS flights and UAS performance profiles with technologies developed specifically for UAS flight risk analysis and NAS-wide simulation analysis. The combination of these technologies answers this important question by leveraging on existing work in creative ways and adapting it to the needs of the UAS aviation safety community.

Primary U.S. Work Locations and Key Partners

An Uninhabited Aerial System Safety Analysis Model (USAM), Phase II

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Organizations Performing Work	Role	Type	Location
Intelligent Automation, Inc.	Lead Organization	Industry	Rockville, Maryland
🟢Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Maryland	Virginia

Project Transitions

▶ **July 2014:** Project Start

✔ **July 2016:** Closed out

> **Closeout Summary:** An Uninhabited Aerial System Safety Analysis Model (USA M), Phase II Project Image
>
> **Closeout Documentation:**
> - Final Summary Chart Image*(https://techport.nasa.gov/file/137614)*
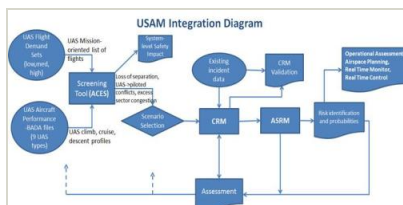
Images

Briefing Chart Image
An Uninhabited Aerial System Safety Analysis Model (USAM), Phase II
(https://techport.nasa.gov/imag e/127839)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Intelligent Automation, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
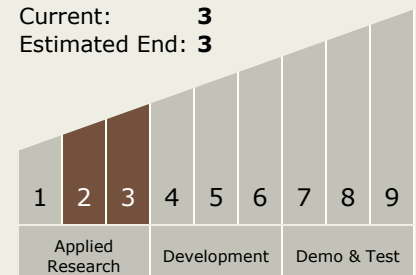Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Ankit Tyagi

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**

1	2	3	4	5	6	7	8	9
Applied Research			Development			Demo & Test		

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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  └ TX11.1 Software Development, Engineering, and Integrity
    └ TX11.1.7 Frameworks, Languages, Tools, and Standards

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System